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DETAILED ACTION

Response to Amendment

Applicant's amendment to the claims filed March 16, 2011 has been entered. Claims 29 and 31 are currently amended. Claims 1-14 have been canceled. Claims 15-28 and 33-38 remain withdrawn from further consideration. Claims 29-32 are under examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 29-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 29 recites that the size of the outlet end of the plurality of needles does not define the size of shape for the resulting capillaries. There does not appear to be support for such a limitation in the original disclosure. Applicant's argument appears to suggest/imply that the limitation is limited to the diameter of the capillary in the final product being smaller than the diameter of the needle. However, the examiner submits the limitation is broader than that which has been argued and the amendment does not find support in the original disclosure. There is a relationship between the size of the needle and the resulting size of the capillary in the disclosure as such the size of the capillary is "defined" by the size of the needle. Further, there does not appear to be support for inclusion of the "shape" limitation. A

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circular needle is desired (paragraph [0019]) to form a circular capillary (Figure 4) and it is not clear how this is related to size in view of the amendment.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 29-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 29 recites the needles “allow fluid to be drawn....to be entrained”. The limiting effect of the recitation is unclear. The limiting effect of “drawn” is unclear. It is unclear whether the use of the word is intended to include a variety of means for supplying the fluid, such as injecting or supplying pressurized fluids, or whether the fluid is intended to be limited to a fluid source at atmospheric pressure or less. For example, paragraph [0014] of the published application appears to suggest the scope of the language is intended to include pressurized fluid (i.e. injected) whereas the language of the claim seems to possibly imply the disclosed air at atmospheric pressure embodiment. Similarly, the limiting effect of “entrained” is unclear in view of paragraph [0014]. Appropriate correction and/or clarification is required. It should be noted that the claims are interpreted in view of the specification, but limitations from the specification are not incorporated into the claims during examination. Thus, should applicant intend to exclude the use of injected fluids, this should be made clear.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 29 is rejected under 35 U.S.C. 102(b) as being anticipated by Zertuche (US 4,655,987).

Regarding claim 29, Zertuche et al. teach the claimed process of producing an extrudate (e.g. a tubular article) comprising a plurality of capillary channels (e.g. multiple inner lengthwise subdivisions) comprising extruding the shape in a continuous manner through a die having a nozzle which contains core partitions/needles 16a 16b 16c 16d (col. 1, lines 3—59; col. 2, lines 15-57; Figure 1; Figure 5). The partitions/needles have internal conduits for the introduction of atmospheric pressure air (claim 1). It is submitted that inherently the extruder has some structure or means for introducing the extrudable material which is readable on the claimed inlet.

Claim 29 is rejected under 35 U.S.C. 102(b) as being anticipated by Delves-Broughton (US 3,771,934).

Regarding claim 29, Delves-Broughton teaches the claimed process of producing an extruded cable having a plurality of longitudinal passageways (Figure 1a; Figure 3a) comprising extruding material through the die of an extrusion tool (e.g. Figure 2a; 2b; Figure 4) wherein atmospheric air is allowed to flow through vent tubes/needles (13) in the Figure 2a embodiment or vent tubes/needles (20) in the Figure 4 embodiment to produce the desired passageway (col. 1, line 29-57; col. 2, lines 37-62; col. 3, lines 20-52). It is submitted that inherently the extruder

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has some structure or means for introducing the extrudable material which is readable on the claimed inlet.

Claim 29 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ho et al. (US 5,658,644).

Regarding claim 29, Ho et al. teach the claimed process of producing a light weight board having a plurality of longitudinally extending passageways (figure 1) comprising extruding the material through a modified die head 3 comprising a plurality of mandrels/needles (16) each having a longitudinal bore (17) to provide air flow through the passageway during extrusion (col. 3, lines 16-35). In one interpretation of the claim it is submitted that the disclosure at col. 3, lines 30-34 anticipates the requirement of allowing air to be drawn into the needles and thus the claim is anticipated. Alternatively, the disclosure at col. 3, lines 30-34 suggests and implies one having ordinary skill would have readily determined the pressure of the air required to achieve and maintain the desired hollow configuration through routine experimentation. See the 35 USC 112 second paragraph rejection above.

Claim 29 and 30 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wooley (US 3,778,495).

Regarding claims 29 and 30, Wooley teach a process for producing a polymeric composition comprising a plurality of channels (16) (Figure 3) comprising extruding the resin through an extruder having a hopper (23) and through a die containing a mandrel with a plurality of mandrel tubes (30) which form the channels (16) by permitting air or other gaseous material to be supplied (Figure 5; col. 7, lines 26-col. 8, line 15). The extrudate is then drawn by puller 35.). In one interpretation of the claim it is submitted that the disclosure at col. 7, lines 60-64

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anticipates the requirement of allowing air to be drawn into the needles and thus the claim is anticipated. Alternatively, the disclosure at col. 7, lines 60-64 suggests and implies one having ordinary skill would have readily determined the pressure of the air required to achieve and maintain the desired hollow configuration through routine experimentation and suggests a substantially overlapping range with the claimed range (e.g. the range disclosed by less than 1-2 psig includes atmospheric pressure). See the 35 USC 112 second paragraph rejection above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zertuche (US 4,655,987), as applied to claim 29 above, and further in view of Herrington (US 7,550,102).

As to claim 30, Zertuche teaches the method of claim 29 as set forth above. Zertuche does not teach drawing down the extrudate with draw down equipment. However, Herrington

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discloses that in the art of making tubular materials draw down equipment is known to pull the extrudate away from the die (Figure 6; col. 15, lines 11-25; Figure 1).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have combined the teaching of Zertuche and Herrington and to have employed the pulling device (e.g. Figure 6 or Figure 1) of Herrington in the method of Zertuche for the purpose of effectively pulling the extrudate away from the die and for further processing (Figure 6) or for the purpose of providing a helical shape to the extrudate (Figure 1; Figure 15).

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Delves-Broughton (US 3,771,934), as applied to claim 29 above, and further in view of Herrington (US 7,550,102).

As to claim 30, Delves-Broughton teaches the method of claim 29 as set forth above. Delves-Broughton does not teach drawing down the extrudate with draw down equipment. However, Herrington discloses that in the art of making tubular materials draw down equipment is known to pull the extrudate away from the die (Figure 6; col. 15, lines 11-25; Figure 1).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have combined the teaching of Delves-Broughton and Herrington and to have employed the pulling device (Figure 6 or Figure 1) of Herrington in the method of Delves-Broughton for the purpose of effectively pulling the extrudate away from the die and for further processing (Figure 6) or for the purpose of providing a helical shape to the extrudate (Figure 1; Figure 15).

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Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being obvious over Ho et al. (US 5,658,644), as applied to claim 29 above, and further in view of Vetter (US 4,707,393).

As to claims 31 and 32, Ho et al. teach and suggest the method of claim 29 as set forth above. Ho et al. do not teach laminating the board with two additional layers. However, Vetter teaches a method of producing a hollow board wherein two additional layers are coextruded/laminated with heat and pressure to achieve a multi-layered article (Figure; col. 2, lines 18-67; col. 3, lines 67-col. 4, line 9).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the method of Ho et al. and to have provided additional layers, as suggested by Vetter, for the purpose of providing a structure well suited for additional applications as is routinely practiced in the art.

Response to Arguments

Applicant's arguments filed March 16, 2011 have been fully considered. Applicant's amendment has overcome the 35 USC 112 second paragraph rejection of claim 31. Applicant's arguments regarding the terms "drawn" and "entrained" have been considered, but the examiner submits the arguments themselves demonstrate the ambiguity of the terms and that applicant has chosen to not provide clarifying language in the claims themselves to exclude certain reasonable interpretations. For example, on page 11, applicant argues that there is no intention to limit or exclude pressurized or atmospheric sources of fluid in the claims. However, on page 12, applicant argues that "this method is different from methods in which fluid is injected under positive pressure". On the one hand the arguments suggest injected pressurized fluid is excluded while on the other hand the applicant does not limit the claims to atmospheric or less than atmospheric pressure. The 112 second paragraph rejection is maintained. Further,

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it is noted that the cited Exhibits in the arguments were not received by the office. Applicant argues that the channels of Zertuche are not "capillary" channels. This argument is not persuasive. The examiner submits the channels are reasonably considered capillary channels and it is noted that the claims do not recite a specific size of the capillary channel or the needle employed to form the channel. Similarly, the term "hair-like" employed in the arguments does not make clear what property or properties of hair is required (e.g. high aspect ratio, cylindrical shape, same diameter or length as a hair, etc.) Further, to the extent that the applied references employ the same disclosed and claimed fluid pressures and configurations and by the nature of the extrusion process (e.g. die swell of the polymer tending to change the shape/size of the channels) and in view of the section 112 rejections (both first and second paragraph), it follows that the references would also achieve the same claimed size and shape results. The examiner submits the claims would need to be amended to overcome the rejections set forth above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFF WOLLSCHLAGER whose telephone number is (571)272-8937. The examiner can normally be reached on Monday - Thursday 6:45 - 4:15, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Wollschlager/
Primary Examiner
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May 23, 2011